

## **ABSTRACT**

A sputtering apparatus is provided. The sputtering apparatus comprises cooling water system having a temperature-controlling device for controlling the temperature of the sidewalls of the reaction chamber. During the deposition process of titanium/titanium nitride, the sidewall temperature of the chamber is controlled at about 50 °C ~ 70 °C for reducing the difference of temperature distribution in the chamber so that the reaction temperature within the reaction chamber can be rendered substantially uniform.